Disease Du Jour Podcast Episode 57 Transcript—Dr. Dianne McFarlane

Commercial: *Today's Disease Du Jour podcast is brought to you by Merck Animal Health. The maker of Prestige vaccines, Banamine, Panacur, Regu-Mate, Protazil and other trusted equine health solutions, Merck Animal Health works for you and for horses.*

Learn more about Merck Animal Health's comprehensive portfolio of products as well as their ongoing investment in our industry, profession and community through programs such as the Respiratory Biosurveillance Program at MerckAnimalHealthUSA.com.

END COMMERCIAL

Kim Brown: Welcome to this episode of Disease Du Jour on the topic of Senior Horse Management with Dr. Diane McFarlane. Dr. McFarlane, DVM, PhD, is a Diplomat in the American College of Veterinary Internal Medicine, and she's a professor in the Physiological Sciences Department at Oklahoma State University College of Veterinary Medicine. She is the Ricks Rapp Professor of Equine Musculoskeletal Research, and her research interests are in age-related and endocrine diseases.

I'm your host, Kim Brown, publisher of EquiManagement.

The Disease Du Jour podcast is brought to you in 2021 by Merck Animal Health.

Welcome Dr. McFarlane.

Dr. Dianne McFarlane: Hi, thank you for having me.

Kim Brown: Well, we're so happy you're here because we know that with our aging equine population, just about every veterinarian is dealing with older horses and the issues they have. And the owners as well.

So, what would you say are the most common issues that veterinarians face with aging horses?

Dr. Dianne McFarlane: Well, there's been a couple of really large studies to answer that exact question. And the results of those studies have shown that the two most common things you deal with in our old horse population is lamenesses and endocrine dysfunction. And when with the endocrine dysfunction, we're talking mostly about Equine pituitary pars intermedia dysfunction, or PPID, as well as insulin dysregulation.

Kim Brown: Well, let's just start in them with PPID. What are some tips that you can offer to veterinarians on recognizing it, diagnosing it, treating it, helping owners manage these horses?

Dr. Dianne McFarlane: So that's a very big question.

Kim Brown: I realize that you could, you could write a book and do a series of lectures on this, but just tips for veterinarians in the field.

Dr. Dianne McFarlane: Absolutely. The first thing that I think is super important is to remember that this diagnosis depends on the animal having clinical signs. So don't get too wrapped up in numbers. And particularly I'm talking about ACTH values in a horse that shows no clinical signs. And when I say clinical signs, I mean, age as well. So, signalment and clinical signs.

So, you want to be watching the horses and having the owners watch the horses for change over time. Remember it's a progressive condition of age. So, if the owner starts noticing slightly later shedding, slightly less complete shedding, some muscle wasting that they hadn't seen before, changes in behavior, those would be the early signs I'd be looking for. And those are the horses you want to test. I am really not a proponent of just going out and testing everybody, every horse, with an ACTH. Because if you get a high ACTH, that doesn't mean they have disease. Because remember it's a hormone. It's supposed to be there and it has a job. It should be going up if the animal has stress or has a secondary infection, there's lots of reasons for it to go up.

So, my number one take-home message is that you want to be using those veterinary clinical skills and you want to be having your owners … teaching them what to look for, which are going to be, again, the hair coat changes when they shed compared to the other horses in the field, as well as the changes in behavior, muscle wasting, those kinds of things, and then do the testing.

Kim Brown: And what about helping owners manage these horses if the veterinarian diagnoses PPID?

Dr. Dianne McFarlane: So, if the diagnosis is reached, then, ideally, what you want to do is start that horse on pergolide, which is a dopamine agonist, because that is going to do the best job at reducing the hormones from the pars intermedia. And so it's going to be the broadest approach that you can take. And so that, that would be the first thing.

And the second thing is management. And regardless of whether the owners are going to be able to put the horse on pergolide, it is important that they step up their management on that horse. They want to be taking care of the hair coat for them. Here in Oklahoma, it can get pretty hot in the summer. And so, you know, you don’t want to leave that hair coat on a horse that has PPID.

You also want to be sure that they have plenty of water and that the owners are monitoring water intake and how frequently they urinate, if that's something they can do. I know sometimes that's hard in a horse in the pasture, but that would be something to watch. Watch how they are thermoregulating because even when their hair coat’s clipped, sometimes these horses will either sweat too much or not sweat enough. And that may require some management to keep them from overheating, which could certainly be life-threatening.

And then you need to be very aware of secondary infections. So, I have a conversation with the owners to be careful of things like dermatitis, rain rot, that it can be secondary to the disease.

Watching how they're eating. Is there any foul odor from the mouth? Is there any indication of tooth root abscesses? That's a very common secondary infection, too. PPID and the fact that they're old horses with teeth that have grown out are more likely to have abscesses and foot abscesses.

Those are the three things I've seen most commonly as secondary infections. So, the owners should be aware of that.

Any kind of exercise intolerance would warrant a full workup because that animal could have a nearly subclinical infection, like a pneumonia. And that may be the reason for exercise intolerance.

And then you also want to be sure that the owners understand the relationship between PPID and laminitis. And it's the horses that have PPID and insulin dysregulation that are at risk of laminitis, not just the PPID. It's those two things together. And the horse that has both of those diseases is more at risk of laminitis than the ones that even have EMS alone. And so having, as the veterinarian, some testing done to try to determine if the animal is, has insulin dysregulation.

Kim Brown: And what testing would you have veterinarians suggest that they recommend owners?

Dr. Dianne McFarlane: So, for PPID, if the case is super early, like you're just starting to get a slight indication of some haircoat changes. The horse isow getting into the teens. You may just elect to go ahead and do a TRH stimulation tests, because that's going to be the most diagnostic in an early case. The horse that has some pretty reasonable signs, very often you can diagnose PPID with the resting ACTH. As far as insulin dysregulation, most of the time, I'm going to say, do an oral sugar test, give a Kyro syrup and measure insulin.

The one place you may get away with just doing a baseline insulin is in the horse that has PPID and insulin dysregulation. They're more likely to have a high baseline insulin. So, you might want to do it on a, you might do that first. And if it's normal, you'd have to come back. It's probably most economical just to go ahead and do the oral sugar test, because you could always have the client give the Kyro syrup and you can come after your hour to 90 minutes and pull the insulin after the sugar. And then you have a more definitive test, with no more expense.

Kim Brown: That's a good tip. Okay. So, with the immune dysfunction, the EMS in horses, in talking before you said horses are not as immune suppressed, like humans are as they age. Can you talk about that a little bit?

Dr. Dianne McFarlane: So just in the general old horse?. So most horses as they age, if they do not get PPID … and so that's about a third horses will eventually have some sort of endocrine dysfunction, so PPID is very common. But in the two thirds or more horses that

have no endocrine dysfunction, they tend to do a very good job of aging without a lot of loss of immune function. We can vaccinate them—and we should because they still have response to their vaccinations, and they are still at risk of infectious disease.

So, in the horse that's otherwise healthy, but aged, the immune system seems to still do a very good job of protecting the horse. They are at slight greater risk of some diseases, especially novel diseases. For example, when West Nile virus was a new disease in the US, the older horses were more commonly affected. But if you vaccinate them, their immune response is still very good, and they can be protected. So, we recommend vaccinating older horses.

The immune function, again, it's slightly decreased, but not nearly to the degree that we see loss of function in humans. And this may be part of why horses are less affected by things like cancer. I don't know, that's just speculation on my part, but they seem to have a fairly intact immune system.

And the one case where we see immune deficiency then would be when they also have age and PPID. So PPID is the main reason we see a loss of function of the immune system in our older horses.

Now, a second thing that happens with age and the immune system is that you can become pro-inflammatory. And so all of the cytokines that are inflammatory cytokines tend to get higher in our aged human population. And we see some similar changes in horses as well that can contribute to things like degenerative joint disease as well as inflammatory, other types of inflammatory disease.

And in our horse, the inflammatory disease we see commonly is lameness. But if I were a betting person, I would put my money that that's more likely the result of years of athletic performance and use and how we use our horses rather than their pro-inflammatory profile. So, they really are pretty good agers when you get down to it.

Kim Brown: We hear people talking about inflammaging talking about inflammation in horses and humans, what does that mean to a horse?

Dr. Dianne McFarlane: So if you test them, if you take blood samples and you test them in the lab, you'll find that their cells are more likely to respond to an inflammatory stimulus. So, if you give them, for example LPS, you'll see more inflammatory cytokines released from white blood cells than you would in a younger animal. And if you just do baseline resting cytokine profiles on them, they have more inflammatory cytokines and less anti-inflammatory cytokines.

As far as general disease, I don't know that we can say that it has a huge implication in the horse, whereas it has certainly been linked to some diseases in humans. Particularly cancers would be one of them and some of the other degenerative conditions that people have as they age. orses have far less neurodegeneration, they have far less cardiovascular problems, they have far less cancer, so they're pretty good agers. And I think our goal as clinicians, as horse owners, as horse professionals should be to keep these horses working and productive as long as possible because biologically they're really good agers.

So, if we can be proactive and identify problems as they're coming, very early on, try to correct things, we can keep horses productive well into their twenties.

Kim Brown: When we had talked about immune dysfunction in the aged horses, and you had mentioned vaccination. I just want to reemphasize, you said older horses should be vaccinated, like a younger horse, but what if they do have some of these immune dysfunctions?

Dr. Dianne McFarlane: So, what we've found is that they will respond. They may respond a little less than a young horse, but it is typically considered to be adequate response. And if you don't vaccinate them, they probably will have lower baselines. So, their antibodies may not last as long. They may not quite get as much of a response to vaccination, but they are responding.

And so, definitely, if you have a horse that is going to be exposed to situations where they could be exposed to viruses, that could be problematic. So, in other words, they are in a barn where horses come and go, then we would want to continue to vaccinate the old horses that are going to be exposed just as we would the younger horses.

So, they may not have quite the same level of response, but it should be sufficient to keep them protected. So that's why we want to continue to vaccinate them if they have exposure.

Kim Brown: Right. Cause I know, some owners I've heard veterinarians complain that some owners say, well, let's just not, they've been vaccinated for years for decades. Let's just not vaccinate him versus, oh, well, their vaccines can't last as long because they don't, you know, they have different vaccines for older humans. So don't, we have a different vaccine for older horses. So sometimes veterinarians are caught in the middle. Trying to explain that.

Dr. Dianne McFarlane: So there, they very well may not have titers as long, as they may not maintain their titers as long, but fortunately we can use our current vaccines and they—this has been tested—and they will have response that just may not last quite as long as it did when they were younger.

The other thing I do suggest is if you have older horses and now I'm talking quite older horses, so horses that are getting into their later twenties and are truly becoming geriatric, to treat them almost like a young horse and try not to have them in the barn where the horses that are showing and coming and going are being kept. So, keep them a little bit more isolated from the traffic, if you will, to try to prevent them from being overly exposed to pathogens, if at all possible.

Kim Brown: And another thing veterinarians will get the question from their horse owners when they're talking about vaccinations, they'll talk about deworming. Older horses, you know, do they respond as well? So what, what is your recommendation to veterinarians when talking to owners about deworming?

Dr. Dianne McFarlane: So, there's a couple of different studies that have been done looking at the parasite load in older horses, and they didn't all come to the same conclusion. We did

one study and only the older horses that had PPID had higher parasite loads than our older horses that were healthy.

The older horses that were healthy had about the same parasite loads as young horses.

But there is another study that was well-designed where the old horses without PPID had a higher parasite load. So, I think the jury is a little out as to if older horses are more susceptible to parasites. And parasites are a little tricky because you don't always see them, you don't always see eggs passing.

So, I think the bottom line is that you want to go ahead and continue to deworm them strategically. So, you should be doing fecal egg counts on them. And as those counts start going up, you do want to go ahead and give them anthelmintics.

All the studies I'm aware of have shown that the anthelmintics are as effective in the elderly horse as they are in the younger horse. There's certainly some anthelmintics that don't work particularly as well as others in situations, but it's not dependent on age. That's dependent on your parasite population.

Kim Brown: Okay. Let's talk a little bit about equine metabolic syndrome. So, what are you seeing that? And again, this is one of those topics that books are written about, but when you're talking about the older horses, how does the EMS fit into that?

Dr. Dianne McFarlane: So, mostly we think of equine metabolic syndrome or insulin dysregulation, and I'll probably switch over and be calling it ID or insulin dysregulation. It's just what I've gotten used to calling it. The name seems to change from time to time.

So, insulin dysregulation often starts in our horses fairly middle-aged, and it's almost been starting earlier even than that. And I kind of liken that to in human medicine, we have obesity problems, metabolic problems as of a middle-aged problem.

But now we're seeing more and more childhood and younger problems with obesity and insulin regulation in people as well. So in our horses, we certainly are seeing this earlier, I think, than we did originally. But the horse that continues to have insulin dysregulation into its later years, and then develops PPID as well, is a horse that is at very high risk of laminitis.

So, the two conditions together are particularly problematic. We don't know exactly why having both together makes them at greater risk of having laminitis. We do know that a horse that is insulin dysregulated, therefore it's more prone to have high insulin, and then has also PPID has even higher influence. I didn't say that very well.

What I'm trying to say is that the presence of PPID in an old horse increases the concentration of insulin and insulin predicts whether or not that horse is going to founder or have laminitis. So having both conditions really increases the risk of laminitis.

And so I think it is important that our old horse owners be aware that if they have a horse that they've been dealing with laminitis, chronically, or it's a horse that's of a breed or a pony that's of a breed that has a tendency to be obese and to have laminitis, they need to

watch it as it ages. Because if it develops PPID, then the risk of having laminitis is going to be even greater.

Kim Brown: Is there anything else on either PPID or the ID or any of that that you would like to remind or refresh veterinarians or is there research you would like to bring to their attention?

Dr. Dianne McFarlane: Oh my gosh, there is so much research going on in this field. It's really, really exciting. And I think that there's going to be a number of important information that's coming out very shortly.

There's some new drugs that are being tested. So hopefully there'll be some good clinical use or clinical outcomes from some of the new research. We, at this point in time, I think we can very clearly say that insulin is the proximate cause of the laminitis. And so it predicts the laminitis, and it predicts the severity of laminitis.

And I think we looked at that from several different directions—epidemiologically, experimentally, histologically. We've looked at this number of ways, and I think that's very clear. How insulin does this is not clear. And so there's a lot of discussion as to whether it works through the IGF-1 receptor. And there's a good bit of information suggesting it does, but there's some information suggesting maybe it's not quite that direct.

So, I think that with the amount of really great researchers working on this project, we're going to have a lot of information in the next five to 10 years. And I think we'll have some new drugs in our hands as well.

But as of right now, I think the most important thing is to be aware that the key to the problem and preventing it is really insulin and working with the diet is probably the most important thing. Making sure that the diet is one that reduces the amount of insulin being released in these insulin-prone animals.

Kim Brown: That's some good tips. And of course we could talk about diet all day long, too, because I think everyone who has middle-aged horses ends up with either fat horses or thin horses.

Dr. Dianne McFarlane: So that brings up one really good point. If you have the fat horse and it's middle-aged, and you start feeding it for its insulin dysregulation … So you're feeding it a diet that is low in non-structural carbohydrates, so low in the sugars, and you're doing a really good job and you're keeping its weight down. As that horse age, you need to really keep an eye on its weight because should it develop PPID, it can really shift its metabolic needs because PPID is a muscle wasting and a catabolic disease. And so, those horses with ID, as they're getting older, you may need to change their diet.

And it seems like one day you go out and have a fat horse and the next day you go out and then it's like, what happened to my horse? It lost all the weight. And it's just because you're so used to trying to keep the weight off that if it shifts into this weight loss, sometimes it doesn't get caught very early.

So be sure the clients know that as their horses age, their diets may need to change as well.

Kim Brown: And that's a very good point.

Let's talk a little bit about, since we're talking about management, you talked about being vigilant with the aged horses because they don't adapt to change as well. So, can you give us maybe an example of a type of exam that you would give to an older horse … an aged horse?

Dr. Dianne McFarlane: Sure. I think, with any aged horse, it's important to remember that being very proactive is the best approach to … I guess that's really true for any disease, but as you mentioned, the old horse doesn't recover very well and doesn't adapt very well. And so if we can find diseases early on and correct them, we're going to have a much better outcome for the horse and for the client.

And so I like to approach the old horse almost like I would approach a pre-purchase exam. I like to really look at each system. I'll admit when I, when I was in primary practice and I went out and I had a healthy horse that was getting vaccinated. My exam included a TPR and a listen to the chest, but I didn't do the level of exam that I would do if I was doing a pre purchase.

I would approach the old horse closer to the pre-purchase exam. I would schedule more time. I would charge more money. But I would look at this horse very critically to try to pick up anything that suggested that there was a change. And if there was, I might follow that up with some lab work. I might do baseline lab work all the way along like a yearly or every six months doing CBC chemistries to see if any of the organ systems are having problems.

But really the physical exam to me is the most critical part, so that you're trying to be on top of a problem rather than behind a problem. And your owners can be also be aware that things can kind of creep up on them, can have a list of things to be paying attention—doing body condition scores on a routine basis, weight tape on a routine basis, paying attention to things like odors in the mouth, changing the amount of time it takes the animal to eat its meal, characteristics of fecal output, urinary output, things like that, that the owner can be paying attention to.

I think all of that helps to, again, be proactive. And I think that's the key to really great care of the geriatric course.

Kim Brown: And you mentioned checking for foul odor of the mouth. Now, why is that something with the older horse that you might want to be more aware of as a veterinarian?

Dr. Dianne McFarlane: So older horses of course have lots of dental problems. And, very often if they're losing some weight, it is loose teeth that are in the back. I know that this generation, the new generation of veterinarians are very well-trained in dentistry compared to my level of training from when I went to vet school way back when. So they are much better at using speculums and getting in there and doing a really good exam and taking care of the mouth.

But horses again, as they age, because their teeth continually grow, become are very much more likely to have loose teeth that will have a tendency to abscess. And so finding those, getting those teeth pulled that need to be pulled or taking care of any abnormalities in the mouth, will help that animal be able to get the most out of its meals. You may find that you're feeding it incorrectly, because it's not able to masticate what it was previously eating.

And so really just watching for any kind of dentistry problem and for the owners, that's going to be things like foul odor telling you have infection in there, quitting or dropping piles of grass when they're eating, which tells you that they may not be getting much nutrition from being out on pasture.

All of those things are good clues whether or not you're feeding the horse optimally for its age and its dentistry.

Kim Brown: Okay. And again, this is a topic I'm sure you could talk about for, you know, months, weeks, years, but is there anything else, as far as veterinarians in the field, that you would want to maybe raise their awareness or have some tips for them when they're dealing with these older horses?

Dr. Dianne McFarlane: Well, no, nothing that comes immediately to mind. I will say that I really enjoy the geriatric part of practice. I think that the clients that have kept their horses for a very long time are super dedicated. I feel like it's something, if you work as a real team with the clients in trying to maintain the horse at its optimal health for as long as possible, that you can really get horses to be able to be productive and performing for quite a long time.

I think that having your owners have a set of things that you would like them to be watching. And I mentioned a few of those already, as far as weight, evidence of any kind of mouth problems, infection. I would be doing routine fecal egg counts on the horses, as I would for all the horses, and doing strategic deworming.

And I'd certainly be on top of nutrition. I think nutrition changes over the lifetime of a horse, and I think we have a lot of great options now in nutrition, and that has probably really contributed to our ability to keep our old horses going for quite a bit longer.

Kim Brown: Well, some great information and tips and we'll be waiting to see what some of this new research brings out for us.

Dr. Dianne McFarlane: I was just going to say every time I speak on laminitis, I feel like I have to do a full lit search and everything's changed again from the time before. So, it is a very exciting thing to be following.

Kim Brown: Well, as the owner of a PPID mare who has had laminitis, I love it when we get some new research, so I appreciate all of it.

But we want to thank you, Dr. McFarlane, for joining us on this episode of Disease Du Jour. And we want to thank all of our listeners for joining us today, and a special thanks to our 2021 sponsor Merck Animal Health.

You can listen and rate previous episodes of Disease Du Jour on iTunes, SoundCloud, Stitcher, or wherever you like to listen to podcasts.

And if you have any questions or suggestions, feel free to send me an email to kbrown@equinenetwork.com.

Disease Du Jour is a production of the Equine Podcast Network, an entity of the Equine Network, LLC.